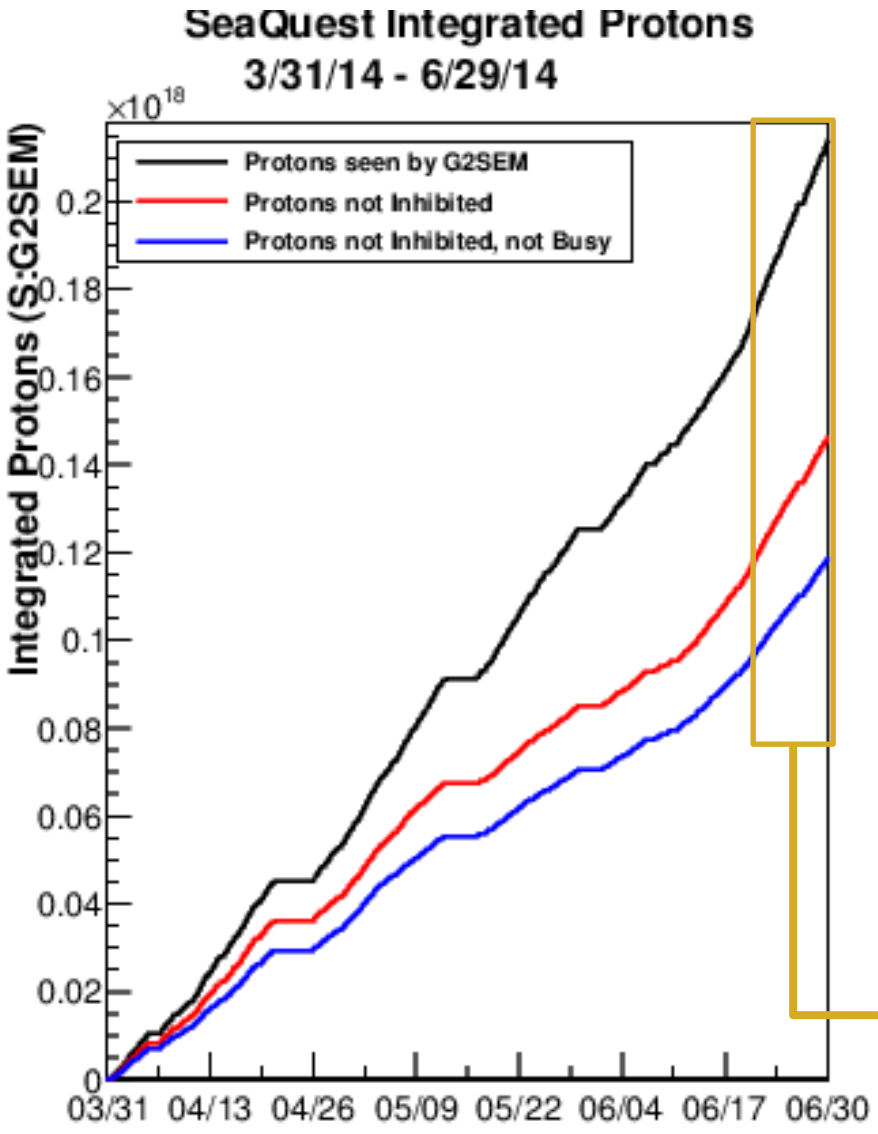
SeaQuest Status
June 23-29

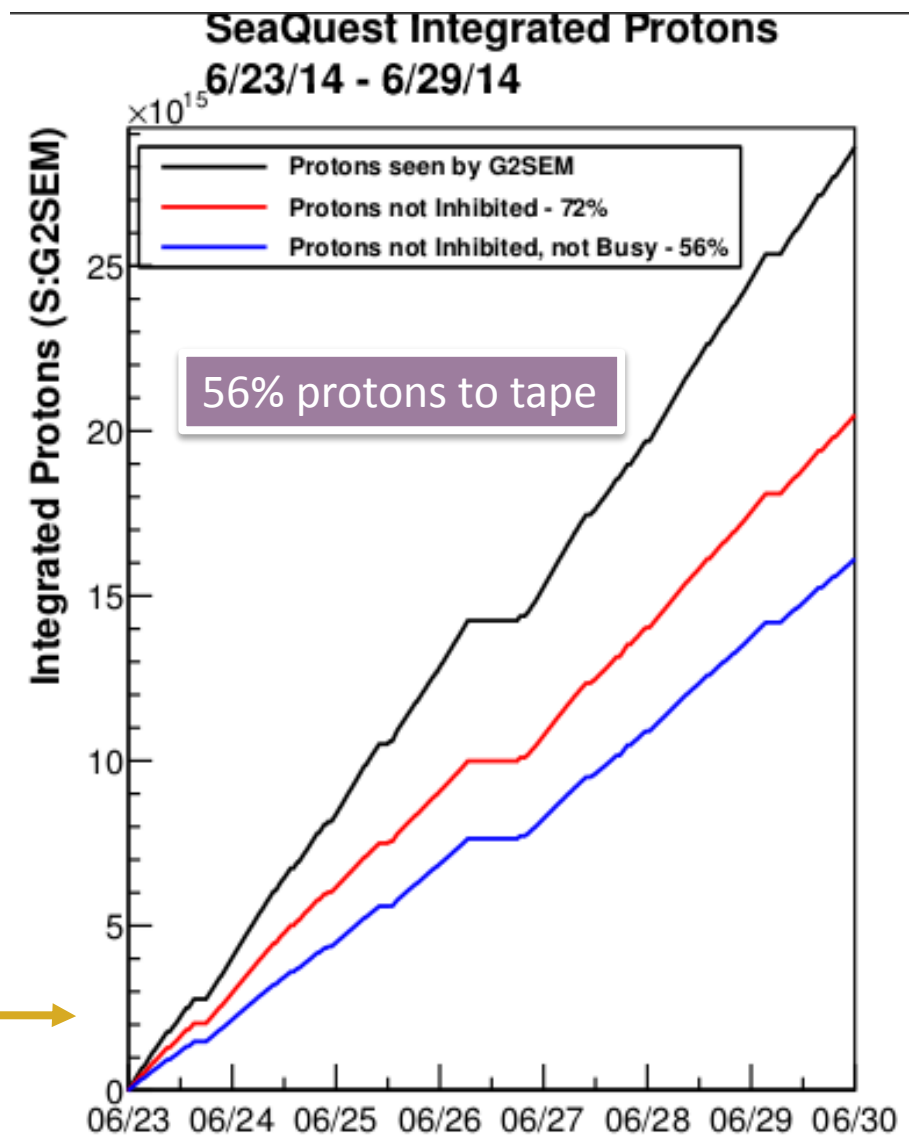
Brian Tice

June 30, 2014

Previous Quarter

Previous Week

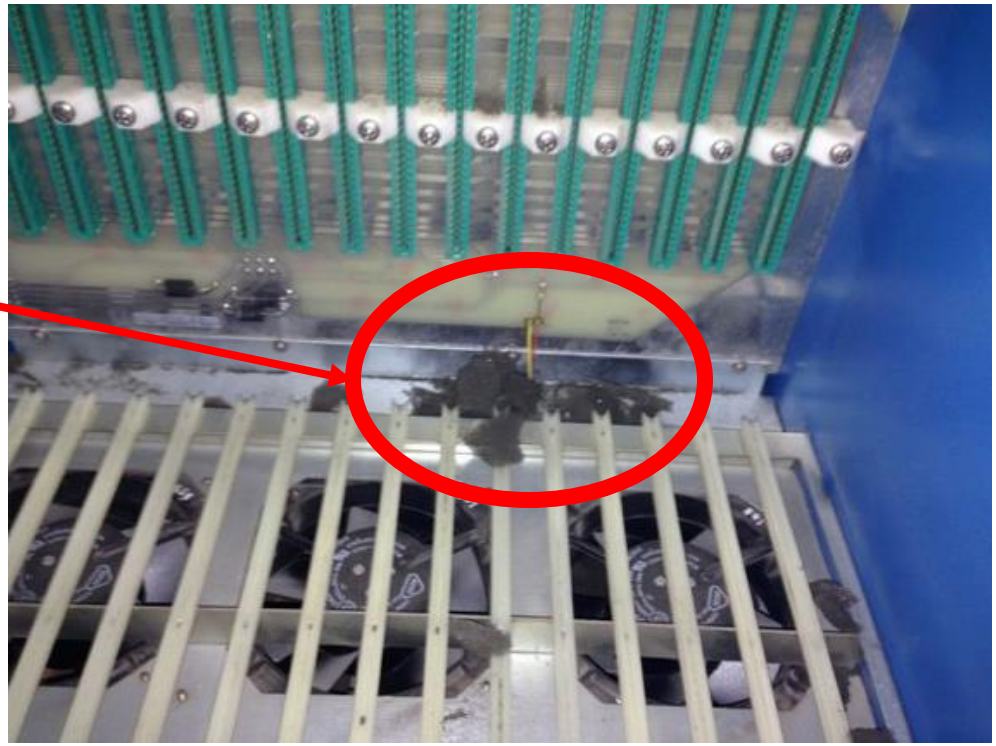




Detector Status – All systems performing well

- Drift chamber voltages adjusted (very slightly) to keep efficiencies high
  - The reason: Improved beam means increased intensity
- 6 noisy ASQD cards on drift chambers swapped during downtime on 6/26
- Surge suppressors installed on level shifter board and VME crates

- HV crate failed, was swapped
  - Problem from **foam bits**
  - Will be sent to PREP for repair

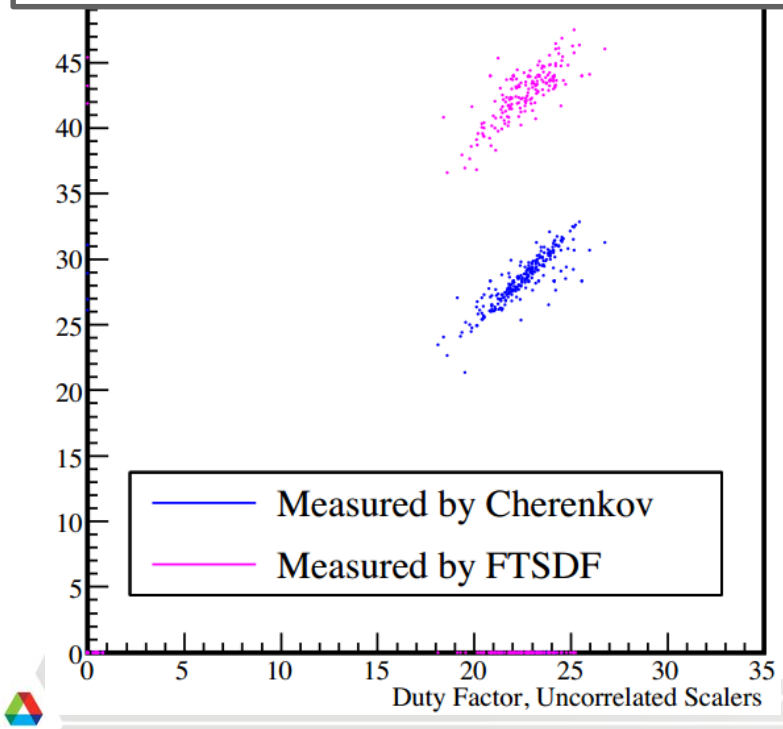


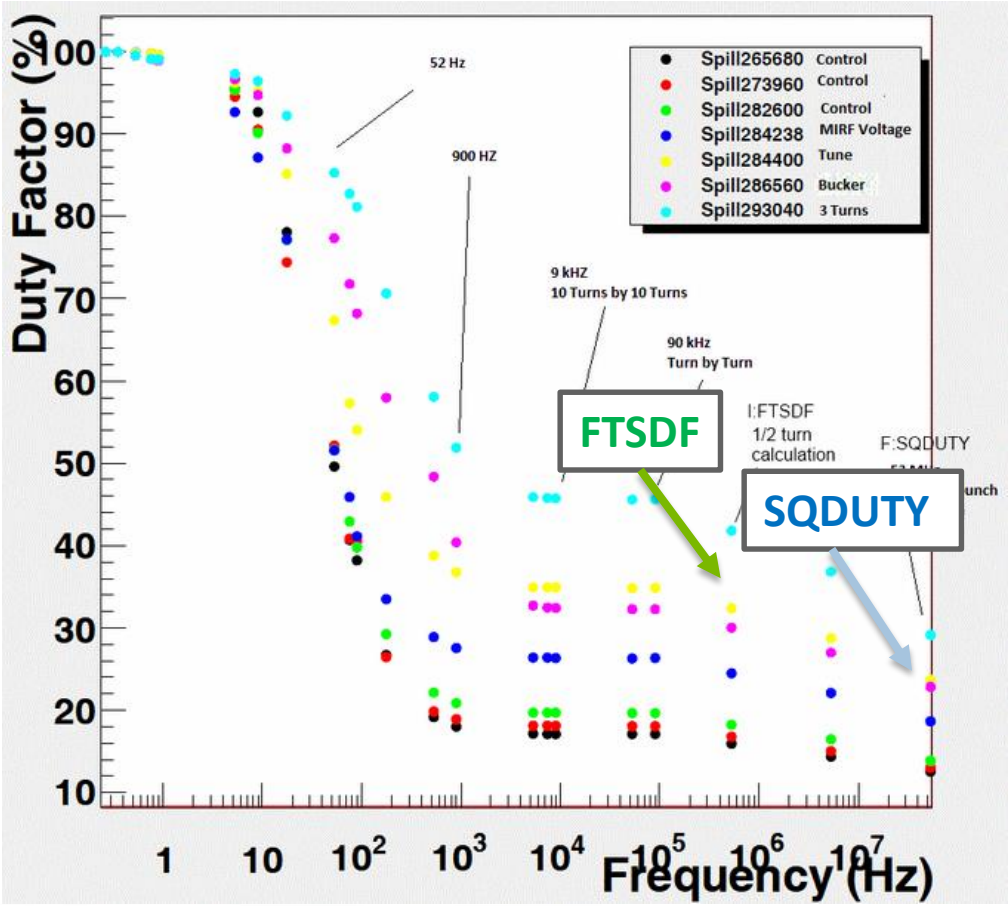
Beam Monitoring

- Introduced to AD ACNET variable FTSDF for seaquest duty factor
  - **FTSDF**– @53kHz (half-turn)
  - **SQDUTY**– @53MHz from SeaQuest Cerenkov

Tracks SeaQuest's measurements from Cerenkov and uncorrelated scalers.

FTSDF / SQDUTY ≈ 1.5

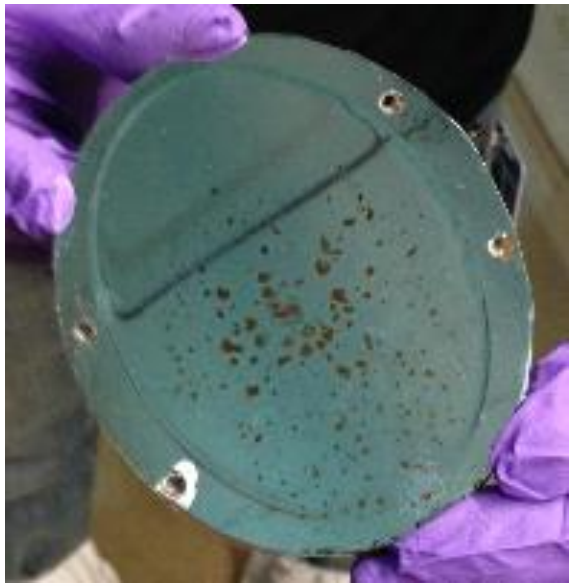




Beam Cerenkov Update

- Aging aluminized Kapton mirror was replaced with new aluminized Mylar mirror
  - Mirrors degrade from beam exposure
  - Change in material not significant. Important part is new mirror is not rad damaged.
- Change is to improve reliability and increase max intensity before saturation
- 10% neutral density filter was replaced with 5% filter
  - Reduces the signal to Cerenkov, lowering risk of saturation
- Cerenkov continues to scale reliably with G2SEM
  - Scaling rate of course is different
  - Duty factor calculation otherwise unaffected

Aging of mirror worse than expected, not understood



Other Updates

- Improved trigger firmware deployed
  - Acceptance of signal goes up
  - Acceptance of background goes down

- Tested running with 4 turn injections
  - Increasing from 3→4 turns increases intensity by ~1/3
  - 10 minutes of testing on 6/24 – checked that beam and SeaQuest detector are OK
  - 1 hour of 4 turn data on 6/25 - Enough to study intensity biases in trigger and analyses
    - Some signs of saturation in Cerenkov (this was before improvements on 6/26)
  - Expecting more 4 turn data this afternoon